



Standard Specification for Handling Characteristics of Aeroplanes¹

This standard is issued under the fixed designation F3173/F3173M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification establishes the airworthiness design standards associated with general airplane-handling characteristics in flight and on ground and water.

1.2 This specification is applicable to aeroplanes.

1.3 The applicant for a design approval shall seek the individual guidance of their respective civil aviation authority (CAA) body concerning the use of this specification as part of a certification plan. For information on which CAA regulatory bodies have accepted this specification (in whole or in part) as a means of compliance to their small aircraft airworthiness regulations (hereinafter referred to as “the Rules”), refer to the ASTM Committee F44 webpage (www.ASTM.org/COMITTEE/F44.htm) which includes CAA website links.

1.4 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

2. Referenced Documents

2.1 *ASTM Standards*:²

F3060 Terminology for Aircraft

F3061/F3061M Specification for Systems and Equipment in Small Aircraft

F3174/F3174M Specification for Establishing Operating Limitations and Information for Aeroplanes

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

2.2 *Federal Standard*:³

14 CFR Part 23 (Amendment 62) Airworthiness Standards: Normal, Utility, Aerobatic, and Commuter Category Aircraft

3. Terminology

3.1 Refer to Terminology F3060 referenced in Section 2.

4. General Requirements

4.1 *General*—Unless otherwise specified in a specific requirement, the airplane shall meet the requirements of 4.2 – 4.9, Sections 5 – 8, 9.1, and 9.2 at all practical loading conditions and operating altitudes for which certification has been requested, not exceeding the maximum operating altitude established in Specification F3174/F3174M, subsection 4.11, and without requiring exceptional piloting skill, alertness, or strength.

4.2 *Control Forces (General)*:

4.2.1 The airplane shall be safely controllable and maneuverable during all flight phases including:

4.2.1.1 Takeoff,

4.2.1.2 Climb,

4.2.1.3 Level flight,

4.2.1.4 Descent,

4.2.1.5 Go-around, and

4.2.1.6 Landing (power on and power off) with the wing flaps extended and retracted.

4.2.2 It shall be possible to make a smooth transition from one flight condition to another (including turns and slips) without danger of exceeding the limit load factor under any probable operating condition (including, for multiengine airplanes, those conditions normally encountered in the sudden failure of any engine).

4.2.3 If marginal conditions exist with regard to required pilot strength, the control forces necessary shall be determined by quantitative tests. In no case may the control forces under the conditions specified in 4.2.1 and 4.2.2 exceed those prescribed in Table 1.

4.3 *Longitudinal Control*:

³ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.